
Planning Community-Wide Services for Persons with HIV Infection in an Area of Moderate Incidence

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Synopsis.....

The human immunodeficiency virus (HIV) epidemic has placed enormous strains on health care and social services delivery. The authors studied the response to the epidemic by a local health jurisdiction in an area of moderate incidence. The area

recorded about 1,000 cumulative cases of acquired immunodeficiency virus syndrome, and the estimated prevalence of HIV infection was 10,000 as of 1991. The local health jurisdiction combined methods in a community-wide planning process for HIV services. The process mobilized the existing community-based network of service providers to identify problem areas and to develop recommendations for action.

The planning group used questionnaires and service use rates to project service requirements, estimate service availability, and establish levels of unmet needs in terms of units of service. Annual requirements per person with HIV infection were projected for case management (0.3 to 0.4 client enrollment slots), dental care (1.9 to 3.4 visits), nonacute institutional care (1.2 days), home health care (17.8 to 22.1 visits), short-term housing (8.3 to 10.6 days), mental health and emotional support (34.6 to 36.6 visits), legal services (2.7 appointments), acute inpatient medical care (2.0 to 3.2 days), and inpatient psychiatric care (0.2 to 0.3 days). Those service requirement estimates for a low or moderate HIV incidence area may be transferable to other communities.

THE HUMAN IMMUNODEFICIENCY VIRUS (HIV) epidemic has placed enormous strains on the health care delivery system in many communities and exacerbated problems already inherent in the social system and the health care delivery and financial systems (1).

To respond creatively to the epidemic, communities have had to investigate methods for improving the effectiveness of the existing health care system and, when necessary, create new components within the system. We describe the service planning model for responding to those complex problems in a moderate incidence area.

There have been several trends in the HIV epidemic that have affected the scope and nature of the epidemic over its course. The populations affected by the HIV epidemic have expanded and shifted. While homosexual and bisexual men still account for most of the reported cases of acquired

immunodeficiency syndrome (AIDS) nationwide, injecting drug users, their sexual partners, and their children represent an increasing proportion of all cases. Women and members of minority groups, both men and women, are increasingly affected by HIV, with some groups disproportionately affected.

Demand for an ever-increasing array of HIV clinical services is expanding as we document the clinical spectrum of HIV-related conditions with greater precision and as infected persons live longer because of improvements in the clinical management of HIV disease (2). The numbers and characteristics of persons who could benefit from early intervention is increasing (3).

The Federal Government has a strong financial incentive to encourage high quality HIV delivery systems that are less costly than those at present. At least 25 percent of the AIDS medical bill in

'Because all of the components of this system worked in conjunction with the central advisory body, an additional result of this process is the development of an ongoing coalition of those interested in addressing the problems of HIV infection in the jurisdiction.'

California is paid through the Medicaid Program (4). There is inadequate information on HIV-related expenditures and how localities are using Federal, State, local, and private sector funds to accomplish policy and program goals related to the HIV epidemic.

In addition to its medical and public health considerations, HIV entails a number of socio-political issues about which there are diverse opinions. Among service providers in the many different service disciplines, there have been differences in their willingness to provide services to persons with HIV (5).

Given the complexity of issues, a multifaceted approach to serving persons with HIV infection has been recommended (6). Municipalities, counties, regions, States, and the Federal Government are being encouraged to work closely to develop new ways to organize, finance, and deliver HIV-related care and services. Developing intergovernmental and public-private financing mechanisms to support the full array of HIV services will be the major challenge (7).

While some planning has been conducted in some areas of high HIV incidence, models for planning for HIV services in moderate incidence areas have not been available. Planning methodologies and the findings of needs and demands assessments in high incidence areas cannot necessarily be transferred directly to moderate or low incidence areas, because models of care may vary with respect to

- the focus of leadership for HIV-related efforts in the county or municipality,
- available and accessible public and private health care facilities,
- available health personnel,
- available health and social service agencies,
- the degree and nature of public-private sector cooperation,

- the type and level of Federal, State, local government, and private sector support,
- the types of service components in the model,
- the type of financing mechanisms for service components,
- the type of case management and the entry points into the system of care,
- standards of care,
- case mix, and
- case load.

Finally, use rates have been limited to a subset of the HIV population that qualifies as AIDS cases (8-10) and to inpatient hospital use (11). Even hospital use rates, overly high because of the lack of community and home-based services to which to discharge, are not directly transferable as optimum demand rates.

The HIV Services Planning Program (HSPP), 1989-90, funded by the Health Resources and Services Administration (HRSA), was established to enable selected low and moderate incidence areas to develop coordinated and integrated service delivery plans for HIV patients. Santa Clara County, CA, received one of those planning grants. Santa Clara County is a community with moderate HIV incidence, with almost 1,000 AIDS cases through 1991 and HIV prevalence estimated at 10,000 persons (12). The county is 21 percent Hispanic, 17 percent Asian, and 62 percent white. A high proportion of residents are between the ages of 20 and 44 years (42 percent). Mean income in 1990 was \$52,000, with 7.1 percent of the county residents having incomes below the poverty level (13).

Planning Process

To facilitate the planning process, the HSPP project built on existing efforts in Santa Clara County to create the jurisdiction for organizing persons and agencies concerned with the HIV epidemic and related issues. An AIDS service provider network, established to promote service coordination and collaboration among HIV service providers in the area, was mobilized to involve the larger community.

Other issue-related or racial or ethnic community groups in the jurisdiction also were involved. Those committees and groups were analyzed for their level of involvement in all sectors. Where involvement was lacking, such as in participation of persons with HIV disease and by industry represen-

tatives, other ad hoc groups were formed. A central advisory committee was formed from all of the groups and was guided by the following guidelines.

Integration of care. A major emphasis of the HSPP was to encourage main streaming of health care delivery for persons with HIV infection by building on existing services and systems. Ideally, care for patients with HIV infection is delivered in the same manner as that provided non-HIV patients with a similar severity of illness. An alternative approach that fosters a separate or parallel health care system for HIV patients would segregate care and place the burden of responsibility on a few health providers. The integration of services should, in the long run, foster improved quality of care, increased access to care, and economic efficiency (14).

Comprehensive services organized in a continuum of care. People with HIV infection experience a range of disabilities, covering the spectrum from asymptomatic to acutely, chronically, and terminally ill. These disease stages generate health care needs and demands ranging from health maintenance and monitoring of asymptomatic patients to acute hospital care and a continuum of care within different residential and subacute care environments. Ideally, a community would make available a comprehensive range of HIV services congruent with the various stages of infection and arranged within a planned continuum of both health care and social support services.

Community and home based ambulatory services. The health care delivery system can minimize costly inpatient hospital services by fostering care on an outpatient basis and in home settings, thus allowing the client to maintain an optimal quality of independent living. Consideration needs to be given to a range of residential or in-home practical assistance with activities of daily living and with housing problems.

Case management. Another major emphasis of the HSPP was the importance of case management. Case managers were assumed to have a pivotal role in assuring that clients received the full array of medical and support services for the duration of their illness (15-18).

Collaboration and coordination. In an integrated system of care, coordination among service provid-

Service Areas Chosen for Quantified Estimates of Service Requirements, Current Service Availability, and Unmet Needs for Persons with HIV Infection, with Category of Units per Year, Santa Clara County, CA, 1990.

Ambulatory care:	
Risk behavior counseling and testing	Visits
Outpatient care, including drug therapy	Visits
Dental care.....	Visits
Mental health treatment services:	
Emotional support	Hours
Outpatient therapy	Hours
Housing services:	
Temporary shelter	Days
Emergency housing subsidies.....	Days
Long-term residential housing.....	Days
Home health care:	
In-home skilled nursing care	Visits
In-home attendant care	Visits
In-home practical support	Visits
Nonacute institutional care:	
Subacute care.....	Bed days
Skilled nursing facility	Bed days
Adult day health care	Bed days
Inpatient Hospice care	Bed days
Residential substance abuse programs:	
Drug detoxification.....	Slots
Drug rehabilitation	Slots
Alcohol services.....	Slots
Outpatient substance abuse programs:	
Drug detoxification.....	Slots
Drug-free counseling.....	Slots
Methadone maintenance.....	Slots
Alcohol services.....	Slots
Acute institutional care:	
Medical care.....	Bed days
Psychiatric care	Bed days
Case management	Slots
Other supportive services:	
Legal services	Visits
Rehabilitation therapy	Visits

NOTE: Slots are client enrollment slots.

ers is critical to avoid costly duplication and assure a complete continuum of care. In addition, collaboration among the leaders in the community, including providers, minority groups, persons with HIV infection, and other interested people or organizations is essential to the success of a comprehensive service delivery system.

Table 1. Estimated numbers of persons with AIDS, deaths attributable to AIDS, and persons living with AIDS, after adjustments for underreporting, Santa Clara County, CA, 1990-92

Year	Cumulative AIDS cases	Cumulative deaths ¹	Number living ²
1990	879	527	352
1991	1,087	652	435
1992	1,302	781	521

¹ Using 1990 Santa Clara County cumulative death rate of 60 percent.

² Persons with AIDS alive during the year.

Table 2. Estimated number of persons with HIV infection, excluding those with AIDS, and their estimated percent distribution grouped by CD4+ count, Santa Clara County, CA, 1990-92

Year	Number with HIV infection				Total
	Less than 200	200-499	499 or less	500 or more	
1990	1,224	2,924	4,148	2,652	6,800
1991	1,260	3,010	4,270	2,730	7,000
1992	1,296	3,096	4,392	2,808	7,200
Prevalence of HIV seropositivity in percents					
1990-92.....	18	43	61	39	100

Table 3. Reported numbers of persons with HIV infection categorized¹ for use in estimating service requirements, Santa Clara County, CA, 1990-92

Year	Group 1	Group 2	Group 3	Total
1990	352	4,148	2,652	7,152
1991	435	4,270	2,730	7,435
1992	521	4,392	2,808	7,721

¹ Persons with HIV infection were categorized into 3 mutually exclusive groups. Group 1 is persons with an AIDS diagnosis, as defined by the Centers for Disease Control and Prevention (CDC). Group 2 is persons with HIV infection, without a CDC-defined AIDS diagnosis, and with a CD4+ count of less than 500. Group 3 is persons with HIV infection, without a CDC-defined AIDS diagnosis, and with a CD4+ count of 500 or more.

Methods

Service provider questionnaires. Several service provider questionnaires were developed by the Santa Clara project to

- obtain data on use rates;
- obtain data on gaps in services;
- obtain information on policies that affect access;
- explore barriers to providing services;
- explore priorities for service expansion and development;

- obtain base line information about each agency in the county that had been identified by committees, previous questionnaires, and resource directories as possible HIV service providers; and
- estimate costs incurred because of the lack of nonacute institutional care.

Seven questionnaires were developed; two questionnaires were distributed widely and five were distributed selectively. The master questionnaire was sent to each of about 200 agencies that provide services on an outpatient basis. All noninpatient service agencies were included. This group was formed by combining AIDS-specific programs with generic programs for persons with HIV infection in their client population. After receiving the responses from the master questionnaire, a case management questionnaire was developed to assess the current level of case management services and to determine the level of referral activity across agencies. In addition, some base line data were gathered regarding the costs incurred because of the lack of available nonacute institutional care facilities.

Three questionnaires, one for discharge planners, one for nonacute institutional care facilities (such as nursing homes), and one for home care providers, were administered to gather data on needs, gaps in services, and barriers within the nonacute institutional care facility system. Other questionnaires were administered as needed to assess whether specific service providers, such as acute psychiatric hospitals and outpatient surgical centers, were serving persons with HIV disease.

Of the two widely distributed service provider questionnaires, 258 were distributed and 178 (68.9 percent) were returned. Most of those who did not return their questionnaires were interviewed eventually and the data obtained directly.

Client questionnaire. After gathering existing data on use rates, a client questionnaire was designed to verify or create local demand rates for services. In addition, the client questionnaire was used to assess the numbers of privately insured, Medicaid insured, and uninsured persons; their ability to access dental services; and the priorities for service development. A total of 401 questionnaires was distributed and 209 (52.1 percent) returned. The representativeness of the sample is described in the results section.

The clients' service providers administered the questionnaires to ensure the anonymity of the respondents. To prevent duplication, training for questionnaire administrators included methods of initial screening of respondents (19).

Because the health and social services delivery system is different for children, a specialized questionnaire was designed for parents or guardians to complete for children with HIV infection. A total of five questionnaires was distributed to parents of children with an AIDS diagnosis and 3 (60 percent) were returned. The statistical limitations include an undersampling of children with HIV infection who did not have an AIDS diagnosis. We recommend that future studies, perhaps utilizing an interview format, explore the needs of that group.

Service provider interviews. More than 200 person-to-person or telephone interviews were conducted with service providers in Santa Clara County. The objective of the interviews was to complement the master questionnaire and service use data in order to

- obtain data on use rates,
- obtain data on gaps in services,
- obtain information on policies that affect access,
- explore barriers to service provision, and
- explore priorities for service expansion and development.

Because of the detail allowed in an interview format, the interviews were tailored by service category.

Client focus groups. Focus groups made up of persons affected by HIV infection were conducted to assess access problems, gaps in services, and priorities for service expansion. The groups combined persons with HIV infection, their families, and other significant persons. The focus groups were held at community sites and were conducted and facilitated by the service provider with whom the clients normally consulted. The clients were assured anonymity and no identifiers were collected. The total number of clients participating in the 6 focus groups was 53. Some focus groups resulted in contacts for 10 individual client interviews. The client focus groups and the client interviews were used to supplement the analysis of barriers to providing optimum services.

Committee experience of service providers, leaders, and consumers. Existing committees were approached for participation because of their interest and roles in the HIV epidemic or in specific relevant subject areas, such as the following.

- substance abuse,
- women and children,

Categories in the Continuum of Care Identified as Having Some Level of Service Requirement and Availability for Persons with HIV Infection, Santa Clara County, CA, 1990

- Adult protective services
- Benefits counseling
- Career and job counseling
- Education
- Emergency assistance:
 - Clothing and household goods
 - Emergency foods, meal delivery, and hot meals
- Financial assistance
- Funeral services
- Hemophilia services
- Mental health residential programs
- Outreach
- Pediatric HIV disease:
 - Developmental, educational, and rehabilitative services
 - Psycho-social management
 - Child welfare services
 - High risk infant followup
 - Child care
- Respite care
- Transportation

- housing and home care,
- emotional support and mental health,
- spiritual counseling,
- multicultural issues,
- levels of care,
- funding,
- case management,
- legislation, and
- benefits counseling.

Committees composed of service providers, leaders, and consumers were used to assess needs, identify gaps in services, identify barriers to optimal service provision, produce recommendations, and set priorities. Each committee conducted a focus group followed by monthly discussion sessions co-facilitated by project staff and the committee leadership.

Evaluation of use rates and the development of demand estimates. A cursory evaluation of rates of use of services for persons with HIV infection in other localities was conducted to determine their reliability and generalizability to Santa Clara County. Use rates were evaluated from King County, WA;

Table 4. Mean perceived demand per year by type of service for 209 persons with HIV infection in groups categorized¹ for use in estimating service requirements, Santa Clara County, CA, 1990.

Service	Per year unit	Group 1 (N = 46)	Group 2 (N = 113)	Group 3 (N = 50)
Physician or clinician ²	Visits	26.52	17.72	7.36
Dental ³	Visits	3.04	3.64	3.36
Physical therapy.....	Visits	4.36	5.68	2.88
Psychiatry.....	Visits	4.44	6.84	4.64
Individual emotional support.....	Visits	15.92	12.48	9.20
Group emotional support.....	Visits	14.28	16.16	24.64
Legal assistance.....	Visits	3.40	3.36	1.92
Home nursing care ² ..	Visits	12.36	2.88	2.08
Attendant care ²	Visits	40.00	10.28	7.60
Practical support ²	Visits	22.88	5.40	2.08
Short term or emergency housing..	Days	10.68	7.60	0.08
Nursing home.....	Days	1.32	0.00	0.08
Inpatient medical ²	Admissions	1.93	0.24	0.62
	Days	13.73	1.62	1.48
Inpatient psychiatric ² ..	Admissions	0.58	0.03	0.00
	Days	0.58	0.33	0.00

¹ Persons with HIV infection were categorized into 3 mutually exclusive groups. Group 1 is persons with an AIDS diagnosis, as defined by the Centers for Disease Control and Prevention (CDC). Group 2 is persons with HIV infection, without a CDC-defined AIDS diagnosis, and with a CD4+ count of less than 500. Group 3 is persons with HIV infection, without a CDC-defined AIDS diagnosis, and with a CD4+ count of 500 or more.

² P < 0.05.

³ P = 0.07.

San Francisco, CA; and Los Angeles, CA (20–22). Local use rates were compared with clients' responses regarding demand for the services.

Service demand estimates must be determined when accurate use data are not gathered for a particular service, are not accurately gathered, or the values are low owing to insufficient available services. Demand estimates for persons with HIV can be used as service requirement estimates for a community or a jurisdiction if minimum utilization requirements are set.

Nationally comparable service units. The definitions of service areas and units of service were coordinated nationwide by HRSA staff in an effort to establish nationally comparable estimates (see first accompanying box, page 287). Although a quantifiable estimate of demand was not possible for the services listed in the second accompanying box, page 289, a cursory analysis was made of their levels of availability and service requirements.

Client sample. We divided the sample into three groups based on the clients' responses to questions about their CD4+ T-lymphocyte ("t-cell") count

and HIV health status. The three groups are mutually exclusive. Group 1 is persons with an AIDS diagnosis, as defined by the Centers for Disease Control and Prevention (CDC). Group 2 is persons with HIV infection, without a CDC-defined AIDS diagnosis, and with a CD4+ count of less than 500. Group 3 is persons with HIV infection, without a CDC-defined AIDS diagnosis, and with a CD4+ count of 500 or more.

The numbers of persons in Santa Clara County in the three groups were estimated by first using the estimated number of cases of persons living with AIDS in Santa Clara County (table 1). A method was used to produce a breakdown of HIV seropositivity prevalence by CD4+ counts to estimate the number of cases in groups 2 and 3 (tables 2 and 3) (23).

This method, developed by CDC, predicts, on a national basis, excluding AIDS cases, the percentages of the population with HIV who would have CD4+ counts of less than 200, 200 to 499, and 500 or more.

Results

Grouping persons with HIV infection by their CD4+ counts is the most practical method for predicting their service requirements (24). In the sample of 209 persons, only 35 (16.7 percent) did not know or did not list their CD4+ count. In addition, some studies have demonstrated the predictability of longevity based on CD4+ counts (24). Statistical tests for significance demonstrate a significant difference in utilization among the three groups for about half of the service categories. The comparisons across groups are demonstrated in table 4. The sample is representative of Santa Clara County's AIDS population in terms of sex, age, and level of Medicaid coverage (tables 5 and 6).

The results were averaged for the entire population of persons with HIV infection, including asymptomatic persons. The highest levels of annual demand per client with HIV infection were demonstrated for case management (0.3–0.4 client enrollment slots), dental care (1.9–3.4 visits), nonacute institutional care (1.2 days), home health care (17.8–22.1 visits), short-term housing (8.3–10.6 days), mental health and emotional support (34.6–36.6 visits), legal services (2.7 appointments), acute inpatient medical care (2.0–3.2 days), and acute inpatient psychiatric care (0.2–0.3 days). To achieve an estimate for the total HIV population, the service rates were multiplied by the estimated prevalence.

Table 5. Age distribution of 209 persons with HIV infection categorized in 3 groups¹ for use in estimating service requirements, compared with persons with AIDS, Santa Clara County, CA, 1990.

Age (in years)	Group 1		Group 2		Group 3		AIDS cases in Santa Clara County	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Younger than 20	0	0	2	2	1	2	10	2
20-29	6	13	25	22	6	12	142	22
30-39	24	52	49	43	26	52	277	43
40-49	13	28	31	28	12	24	129	20
50 or older	3	7	6	5	5	10	86	13
Total	46	100	113	100	50	100	644	100

¹ Persons with HIV infection were categorized into 3 mutually exclusive groups. Group 1 is persons with an AIDS diagnosis, as defined by the Centers for Disease Control and Prevention (CDC). Group 2 is persons with HIV infection, without a CDC-defined AIDS diagnosis, and with a CD4+ count of less than 500.

Group 3 is persons with HIV infection, without a CDC-defined AIDS diagnosis, and with a CD4+ count of 500 or more.

NOTE: For comparison between group 1 and County AIDS cases, chi-square = 6.13, P = 0.1896.

As indicated in an earlier paper, the demand for health care services varied by disease stage (AIDS, AIDS-related complex [ARC], and HIV positive) and, on a very limited basis, by insurance coverage (private or public versus no insurance) (25). Those with an AIDS diagnosis, group 1, had significantly greater requirements for acute care and home care. The groups did not differ in demand for dental, physical therapy, mental health, and legal services (25). Additional breakdowns of demand rates are available on request to the authors.

Estimated current service availability and unmet demands. The availability of each service was determined using service provider questionnaires, interviews, and facility reports. When there were confirmatory data on the reasons for the lack of placement of persons with HIV infection in facilities, these factors were quantified and used to estimate the measure of availability. Measures of service availability were subtracted from measures of service requirements to estimate unmet demands.

The highest annual levels of unmet demands per client were found in the service areas of case management (0.2-2.0 client enrollment slots), dental care (0.8-2.2 visits), substance abuse treatment services (4,443 total client admissions), nonacute institutional care (1.0 days), home health care (7.3-10.9 visits), housing (7.8-10.1 days), and mental health and emotional support (26.1-28.1 visits).

Plan recommendations. Analyses of barriers to optimal service provision are fundamental to the development of recommendations for service system development. To develop a realistic set of priorities, the listed recommendations were first grouped into these larger goals

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- develop a continuum of services that is responsive to the multiple needs and diagnoses of persons with HIV infection;
- ensure access to services for all groups or populations;
- prevent unnecessary hospital use by enabling and strengthening care in the home and community;
- remain flexible and responsive to the use of new technologies, developments, and social responses and issues in addressing the epidemic; and
- continue the planning process in order to reevaluate demand estimates, maintain coordination, avoid unnecessary duplication, and optimize services access.

Using a modified Delphi method, each subcommittee provided information on its priority setting process to the central advisory body. Data sets, assumptions, and criteria provided additional bases for decision making.

Community organization. The project utilized the disciplines of community organizing to develop a priority agenda for current and future actions necessary to

- build and maintain a service delivery system by mobilizing an ongoing coalition of service providers and consumers,

Table 6. Percent distribution by sex, age, and insurance coverage of 209 persons with HIV infection in groups categorized¹ for use in estimation of service requirements, Santa Clara County, CA, 1990.

Characteristic	Group 1 (N = 46)	Group 2 (N = 113)	Group 3 (N = 50)
Sex:			
Men ²	95.5	95.5	84.0
Women ²	4.4	4.5	16
Age (in years):			
Mean	³ 37.5	⁴ 35.7	⁵ 38.1
Younger than 30	13.0	24.0	14.0
50 and older	7.0	5.0	10.0
Insurance:			
Medicaid	39.1	2.7	4.0
Private	58.7	60.2	48.0
Uninsured	2.2	37.2	48.0

¹ Persons with HIV infection were categorized into 3 mutually exclusive groups. Group 1 is persons with an AIDS diagnosis, as defined by the Centers for Disease Control and Prevention (CDC). Group 2 is persons with HIV infection, without a CDC-defined AIDS diagnosis, and with a CD4+ count of less than 500. Group 3 is persons with HIV infection, without a CDC-defined AIDS diagnosis, and with a CD4+ count of 500 or more.

² $P < 0.05$ in chi-square analysis between study groups.

³ SE = 1.5.

⁴ SE = 0.9.

⁵ SE = 1.6.

'The health care delivery system can minimize costly inpatient hospital services by fostering care on an outpatient basis and in home settings, thus allowing the client to maintain an optimal quality of independent living. Consideration needs to be given to a range of residential or in-home practical assistance. . . .'

- arouse widespread awareness regarding the local impact of the HIV epidemic and generate community support for an appropriate response,
- serve as a springboard for implementing activities directed to service delivery and removing access barriers,
- act as a catalyst for stimulating public and private funding for needed services,
- organize a service delivery system that provides humane and quality care for persons with HIV infection,
- develop a cost-effective system of care, and
- apply the knowledge and experience gained from innovative and comprehensive models of care for persons with HIV infection to meet the similar needs of patients with other chronic, debilitating illnesses.

Because all of the components of the system worked in conjunction with the central advisory body, an additional result of the process is the development of a coalition of those interested in addressing the problems of HIV infection in the jurisdiction. More than 800 persons in the jurisdiction contributed to the plan, of whom 200 or more were persons with HIV infection.

Discussion

Information on the problems associated with HIV infection is critical to policy and funding decisions. Immediate applications include directing existing and future funding programs, redesigning entitlement restrictions, and advocacy towards more service availability, whether in the integrated service model or the HIV-specific service model. The Ryan White Comprehensive AIDS Resources Emergency (CARE) Act of 1990, which authorizes funds to local consortia for providing a comprehensive continuum of care and requires consortia to set priorities for funding HIV services. The planning model can be used for this and other projects.

The demographics of this jurisdiction's epidemic and the characteristics of the service delivery system distinguish the jurisdiction as a "second tier" area in the scope of the HIV epidemic. Other communities may want to consider using the service requirement estimates from this project, because local use data are expensive to gather and data from high incidence areas cannot be generalized to moderate incidence areas.

Other predictors of functionality or disease progression may be considered for planning efforts. Health status measures with as yet untested predictive qualities are Beta 2 microglobulin levels, p24 antigen levels, and functional status measurements using the Karnofsky or other scales. We found that information on their CD4+ counts was readily available to most members of the sample.

The process of bringing a community together to routinely exchange information, discuss issues, and build consensus required much negotiation. With minimum funding, Santa Clara County benefited from the pooling of planning resources and from the establishment of formal and informal planning structures. With the resulting centralizing infrastructure, the community of Santa Clara County will continue its planning efforts, continually readjusting for new community dynamics, technology changes, or new data that reflect changes in the HIV epidemic.

References

1. Bloom, D. E., and Carliner, G.: The economic impact of AIDS in the United States. *Science* 239: 604-609, Feb. 5, 1988.
2. Seage, G. R., Landers, S., Lamb, G. A., and Epstein, A. M.: Effect of changing patterns of care and duration of survival on the cost of treating the acquired immunodeficiency syndrome (AIDS). *Am J Public Health* 80: 835-836 (1990).
3. Francis, D. P., et al.: Targeting AIDS prevention and treatment toward HIV-1-infected persons: the concept of early intervention. *JAMA* 262: 2572-2576, Nov. 10, 1989.
4. State of California, Health and Welfare Agency: Demographics and expenditures for persons with AIDS, 1980-89. *Medi-Cal Studies in AIDS*, No. 1. Department of Health Services, Medical Care Statistics Section, Sacramento, March 1990.
5. Kass, N.: Perceived discrimination in health care and employment among homosexual men. Paper presented at VI International Conference on AIDS, San Francisco, CA, June 21, 1990.
6. Howell, E. M.: The role of community-based organizations in responding to the AIDS epidemic: examples from the HRSA service demonstrations. *J Public Health Policy* 12: 165-174, summer 1991.
7. 101th Congress: Testimony by Philip R. Lee to House of Representatives Committee on the Budget, Task Force on Human Resources; Hearings on Fiscal Year 1991 AIDS Budget. San Francisco, CA, Jan. 16, 1990.
8. Scitovsky, A. A., Cline, M., and Lee, P. R.: Medical care costs of patients with AIDS in San Francisco. *JAMA* 256: 3103-3106, Dec. 12, 1986.
9. Pascal, A.: The costs of treating AIDS under Medicaid: 1986-1991. Rand Corporation, Santa Monica, CA, 1987.
10. Hellinger, F. J.: Forecasting the personal medical care costs of AIDS from 1988 through 1991. *Public Health Rep* 103: 309-319, May-June 1988.
11. Drucker, E. P., et al.: Hospital utilization patterns and charges for care of inner city AIDS patients, by risk group, sex and race or ethnicity. Paper presented at III International Conference on AIDS, Washington, DC, June 1-5, 1987.
12. Santa Clara County: Surveillance report, AIDS cases, period ending June 20, 1990. Santa Clara, CA, 1990.
13. Santa Clara County Health Department: Community-wide AIDS/HIV services plan, 1990-1992, Santa Clara County, 1990. Santa Clara, CA, 1991.
14. Crystal, S.: Costs of medical and supportive care for persons with AIDS. *Fam Community Health* 12: 14-23 (1989).
15. Health Resources and Services Administration: Findings and recommendations of the Social Work Task Force. Rockville, MD, November 1987.
16. Rothman, J.: A model of case management: toward empirically based practice. *Soc Work* 36: 520-528 (1991).
17. Sonsel, G. E., Paradise, F., and Stroup, S.: Case management practice in an AIDS service organization. *Social Casework* 69: 388-392 (1991).
18. Sowell, R., et al.: Impact of case management on hospital charges. *J Assoc Nurs AIDS Care* 3: 24-31 (1992).
19. Fowler, F. J., and Mangione, T. W.: The effect of training and supervision on common measures of field interviewer performance. *In* Health survey research methods, proceedings of the Fourth Conference on Health Survey Research Methods, Washington, DC, May 1982. DHHS Publication No. (PHS) 84-3346. National Center for Health Services Research, Rockville, MD, May 1982, pp. 295-300.
20. State of Washington, Department of Social and Health Services: Health service needs of persons with AIDS and other non-AIDS class 4 human immunodeficiency virus infections in Washington State in the late 1980s-early 1990s. Olympia, 1988.
21. Blum, H. L.: Report to David Werdegar, MD, MPH, Director of Health, City and County of San Francisco, San Francisco Department of Public Health. Committee for Non-Acute Services for Persons with AIDS. San Francisco, CA, Jan. 19, 1989.
22. Los Angeles County Department of Health Services: Los Angeles County HIV strategic plan, fiscal years 1990/91-1992/93. AIDS Program and Community HIV Planning Council, Los Angeles, CA, 1990.
23. Estimates of HIV prevalence and projected AIDS cases: summary of a workshop, October 31-November 1, 1989. *MMWR Morb Mortal Wkly Rep* 39: 110-119, Feb. 23, 1990.
24. Moss, A. R., et al.: Seropositivity for HIV and the development of AIDS or AIDS-related condition: three-year follow-up of the San Francisco General Hospital cohort. *Br Med J* 296: 745-750, Mar. 12, 1988.
25. Lubeck, D. P., Lenker, S., and Vosler, A.: Demand for HIV services, insurance status, and disease stage. Paper presented at the American Public Health Association 119th Annual Meeting, Atlanta, GA, Nov. 10-14, 1991.